

Appl. No. 10/735,656
In re Croyle
Reply to Office Action of May 19, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A pulse discharge apparatus comprising:
an electrical load;
an electrical power source; and
a plurality of at least one pulse discharge switch module modules connected in parallel with one another;
each of said at least one plurality of pulse discharge switch module modules including:
at least one capacitor for storing an electrical energy;
a semiconductor high-power switch having an input connected in series to said at least one capacitor for allowing said stored electrical energy to be transferred from said at least one capacitor to said load; and
a semiconductor low-power switch having an input connected in series to said at least one capacitor for allowing charging supply from said electrical power source charge said at least one capacitor; and
a module trigger selector operatively coupled to each of said plurality of said pulse

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discharge switch modules, said module trigger selector is provided for independently and selectively controlling each of said plurality of said pulse discharge switch modules in order to selectively operate a selected number of said plurality of said pulse discharge switch modules;

wherein said high-power switch and said low-power switch are connected to the same terminal of said at least one capacitor.

Claim 2 (canceled)

Claim 3 (currently amended): The pulse discharge apparatus as defined in claim 1 [[2]], wherein said plurality of said pulse discharge switch modules are substantially identical to each other.

Claim 4 (currently amended): The pulse discharge apparatus as defined in claim 1, wherein each of said plurality of said at least one pulse discharge switch modules module includes a plurality of said capacitors connected in series or in parallel with one another.

Claims 5-7 (canceled)

Claim 8 (currently amended): The pulse discharge apparatus as defined in claim 1 [[7]], further including a human interface device provided for controlling said module trigger

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selector.

Claim 9 (currently amended): The pulse discharge apparatus as defined in claim 1, wherein said low-power switch of each of said plurality of said at least one pulse discharge switch modules module includes a semiconductor-controlled rectifier.

Claim 10 (currently amended): The pulse discharge apparatus as defined in claim 1, wherein said high-power switch of each of said plurality of said at least one pulse discharge switch modules module includes a semiconductor-controlled rectifier.

Claim 11 (currently amended): The pulse discharge apparatus as defined in claim 10, wherein said high-power switch of each of said plurality of said at least one pulse discharge switch modules module further includes a diode connected in parallel to said semiconductor-controlled rectifier.

Claim 12 (original): The pulse discharge apparatus as defined in claim 1, wherein said pulse discharge apparatus is a magnetic pulse welding machine.

Claim 13 (original): The pulse discharge apparatus as defined in claim 12, wherein said electrical load is an inductive coil of said magnetic pulse welding machine.

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Claim 14 (original): The pulse discharge apparatus as defined in claim 1, wherein said electrical power source provides a charging current to said at least one capacitor.

Claim 15 (original): A pulse discharge apparatus comprising:
an electrical load;
a D.C. electrical power source;
a plurality of substantially identical pulse discharge switch modules connected in parallel with one another;
each of said pulse discharge switch modules including:
a capacitor for storing an electrical energy;
a semiconductor high-power switch having an input connected in series to said capacitor for allowing said stored electrical energy to be transferred from said capacitor to said load, said high-power switch including a semiconductor-controlled rectifier and a diode connected in parallel to said semiconductor-controlled rectifier;
a semiconductor low-power switch having an input connected in series to said capacitor for allowing charging supply from said electrical power source charge said capacitor, said low-power switch including a semiconductor-controlled rectifier;
said high-power switch and said low-power switch are connected to the same terminal of said capacitor;
a module trigger selector electrically coupled to each of said plurality of said pulse

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discharge switch modules, said module trigger selector provided for independently and selectively controlling each of said plurality of said pulse discharge switch modules in order to selectively operate a selected number of said plurality of said pulse discharge switch modules; and

a human interface device provided for controlling said module trigger selector.